What is claimed is :

1. An oxygen sensing element comprising a cup-shaped solid electrolytic body with one end closed and an inside space serving as a reference gas chamber, a sensing electrode provided on an outer surface of said solid electrolytic body so as to be exposed to measuring gas, a reference electrode provided on an inner surface of said solid electrolytic body, and a heater disposed in said reference gas chamber, wherein

a contact portion comprises a region where said heater is brought into contact with said inner surface of said solid electrolytic body and an opposing region on the outer surface of said solid electrolytic body,

said sensing electrode includes at least part of said contact portion,

a gas receiving surface region, exposed to the measuring gas when said oxygen sensing element is operated, is provided on the outer surface of said oxygen sensing element so as to extend from a distal end of said oxygen sensing element to a position spaced by a distance L away from said distal end,

at least part of said contact portion is located in a region extending from said distal end of said oxygen sensing element to a position spaced by a distance 0.4L away from said distal end, and

said sensing electrode is entirely located in a region extending from said distal end of said oxygen sensing element to a position spaced by a distance 0.8L away from said distal end.

2. The oxygen sensing element in accordance with claim 1, wherein said sensing electrode and said reference electrode are in a confronting relationship via said solid electrolytic body.

3. The oxygen sensing element in accordance with claim 1, wherein an external lead electrode extends on said outer surface of said solid electrolytic body to transmit a sensing signal of said sensing electrode to the outside, and said external lead electrode has a circumferential width in a range from 0.1 mm

52

to 5 mm.

4. The oxygen sensing element in accordance with claim 1, wherein an internal lead electrode extends on said inner surface of said solid electrolytic body to transmit a reference signal of said reference electrode to the outside, and said internal lead electrode and said external lead electrode are in an offset relationship via said solid electrolytic body.

5. The oxygen sensing element in accordance with claim 1, wherein said sensing electrode is formed by chemical plating.

6. An oxygen sensing element comprising a solid electrolytic body, a reference gas chamber provided in said solid electrolytic body, a sensing electrode provided on an outer surface of said solid electrolytic body, a reference electrode provided on an inner surface of said solid electrolytic body which defines said reference gas chamber, wherein

a gas receiving surface region, exposed to measuring gas when said oxygen sensing element is operated, is provided on the outer surface of said oxygen sensing element so as to extend from a distal end of said oxygen sensing element to a position spaced by a distance L away from said distal end,

said sensing electrode has a length L1 equal to or larger than 0.2L in a longitudinal direction of said oxygen sensing element,

said sensing electrode is entirely located in a region extending from said distal end of said oxygen sensing element to a position spaced by a distance 0.8L away from said distal end, and

said sensing electrode has a thickness of 0.5~3.0 μm.

7. The oxygen sensing element in accordance with claim 6, wherein

said oxygen sensing element has a heater which comprises a heat generating portion generating heat in response to supplied electric power,

said sensing electrode is located at a position opposing to at least a

53

central position of said heat generating portion in the longitudinal direction of said oxygen sensing element, and

said heat generating portion has a length L2 in the longitudinal direction of said oxygen sensing element, so as to satisfy the relationship $1.0 \leq L1/L2 \leq 4.0$.

8. The oxygen sensing element in accordance with claim 6, wherein said heat generating portion has a length L2 of 3~12 mm.

9. The oxygen sensing element in accordance with claim 6, wherein the length L of said gas receiving surface region is in a range of 15~30 mm.

10. The oxygen sensing element in accordance with claim 6, wherein said sensing electrode is fabricated by chemical plating.

11. The oxygen sensing element in accordance with claim 6, wherein said reference electrode and said sensing electrode are in an opposed relationship via said solid electrolytic body.

12. The oxygen sensing element in accordance with claim 6, wherein said solid electrolytic body is a cup-shaped body having one end closed and having an inner space serving as said reference gas chamber, and said heater is accommodated in said reference gas chamber.

13. The oxygen sensing element in accordance with claim 12, wherein a clearance of 0.05~1.0 mm is provided between said heater and the inner surface of said solid electrolytic body at a longitudinal position corresponding to said sensing electrode.

14. The oxygen sensing element in accordance with claim 6, wherein said oxygen sensing element is a multilayered sensing element, and said heater

54

and said solid electrolytic body are accumulated layers of said multilayered sensing element.